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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREA GERKEN and GUNTER VOGT

Appeal 2008-1938
Application 10/716,128
Technology Center 1700

Decided: August 5, 2008

Before THOMAS A. WALTZ, CATHERINE Q. TIMM, and
JEFFREY T. SMITH, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1, 3, and 7-13. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

I. BACKGROUND

The invention relates to a method for molding a foam article having a skin. The process involves molding the skin against a spatially conformed, elastic skin and back-foaming against the molded skin. Claim 1 is illustrative:

1. A method for producing a molded body firmly bonded to a grained or structured molded skin, comprising the following steps:

a) inserting a spatially conformed, elastic skin having a graining or structuring on an inside thereof, into a receiving mold of a tool bottom part, the mold being open on one side so that an outside of the elastic skin abuts and is stabilized by an inner wall of the receiving mold;

b) applying a liquid plastic film with a predefined film thickness to the grained or structured inside of the elastic skin;

c) hardening the plastic film so that a molded skin is formed;

d) back-foaming the molded skin under the influence of heat after said step of hardening to form the molded body and forming a firm bond between the molded body and the molded skin by introducing reactive foaming agents into an intermediate space that is delimited by an inside of the molded skin and a spatially conformed tool top part, which is inserted into the receiving mold of the tool bottom part to close the mold, the dimensions of the intermediate space, and thus also of the foam that forms the molded body, being defined by contours of the molded skin and the tool top part, and the intermediate space being sealed off by the tool top part during foaming;

e) removing the elastic skin, molded skin, and the molded body all together in a single assembly from the receiving mold of the tool bottom part, the tool top part being removed either before or after the removal of the assembly; and

f) stripping the elastic skin from the molded skin, which is firmly bonded with the molded body, so that a graining or structuring remains on the surface of the molded skin after the elastic skin is stripped away, wherein the tool top part is heated via at least one heating channel extending in [sic, the] tool top part.

The following rejections are subject to our review:

1. The rejection of claims 1, 7, 10, 12, and 13 under 35 U.S.C. § 103(a) as unpatentable over Ericson (US 3,259,673 issued Jul. 5, 1966) in view of Malfliet (WO 02/26461 A2 published Apr. 4, 2002 to Malfliet et al.) and Demoe (WO 01/26883 A1 published Apr. 19, 2001 to Demoe et al.);
2. The rejection of claim 3 under 35 U.S.C. § 103(a) as unpatentable over Ericson, Malfliet, and Demoe and further in view of Jourquin (US 5,662,996 issued Sep. 2, 1997);
3. The rejection of claims 1, 8, and 9 under 35 U.S.C. § 103(a) as unpatentable over Greene (US 5,938,993 issued Aug. 17, 1999) in view of Malfliet, Ericson, and Demoe; and
4. The rejection of claim 11 under 35 U.S.C. § 103(a) as unpatentable over Greene, Malfliet, Demoe and further in view of Staneluis (US 4,925,719 issued May 15, 1990 to Staneluis et al.)

II. DISCUSSION

Turning first to the rejection of claims 1, 7, 10, 12, and 13 over Ericson, Malfliet, and Demoe, we note that Appellants do not argue any claim apart from the others. Thus, we select claim 1 to represent the issues on appeal.

Appellants contend that one skilled in the art would have no reason to combine the teachings of Ericson, Malfliet, and Demoe because “none of the cited references teach the desirability of making the combination that only Appellants have taught.” (Br. 14; Reply Br. 3-4). According to Appellants, there is no suggestion in any of the references that the method according to Ericson was inadequate or should be modified (Br. 14), one would not be motivated to produce graining or structure on the molded skin of Ericson because Ericson is not concerned with the surface of the vinyl skin (Br. 15; Reply Br. 3-4), and Ericson fails to teach or suggest the desirability of heating a top tool part via heating channels because Ericson only teaches placing the mold tool in an oven and heating channels are more costly and complicated and would be used only if better heating and/or cooling can be achieved (Br. 15-16; Reply Br. 4-5).

The Examiner finds a reason to employ an elastic skin with a grain pattern such as that taught by Malfliet in Ericson’s process to prevent mold seams from being present in the final product (Ans. 9) and a reason to heat the mold of Ericson and Malfliet using heating channels because Demoe shows such channels as a known alternative in the art to using an oven for heating (Ans. 9-10).

The issue on appeal arising from the contentions of Appellants and the Examiner is: have Appellants shown that the evidence fails to support the Examiner’s findings of reasons to combine the teachings of Ericson, Malfliet, and Demoe to obtain a method having the steps of claim 1?

Because the evidence supports the findings of the Examiner, we answer this question in the negative.

Ericson describes a method of forming a composite article having a vinyl polymer cover skin and a foamed core (col. 7, ll. 66-72; Fig. 4). The process involves forming a vinyl film by airless spraying vinyl resins on preheated mold surfaces and back-foaming by closing the mold and pouring a urethane foam reaction mixture into the closed cavity, and subsequently placing the mold in an oven (see, e.g., Example 1; Figs. 1-3). The mold has a grained textured surface (col. 8, ll. 50-52) that is reproduced onto the surface of the vinyl skin (col. 9, ll. 5-9). The process is useful for forming components such as automobile arm rests, sun visors, resilient covers for instrument panels, and the like (col. 1, ll. 21-29).

Malfliet indicates that, in the art of manufacturing automotive vehicle parts with flexible polyurethane skins, it has been conventional to increase the freedom of design by using movable mold sections (slides 3, 4 shown in Fig. 1) for undercut areas, but that traces of the seam between mold sections may be reproduced on the article skin (p. 1, ll. 3-23). To avoid this drawback, Malfliet inserts a removable flexible liner (6) of elastic material (a spatially conformed, elastic skin) to cover the seams and then molds the skin upon the liner (p. 2, l. 24 to p. 3, l. 12; p. 5, l. 14 to p. 6, l. 18; Figs. 1-2). This prevents the seam from being reproduced on the surface of the skin (*id.*). Malfliet teaches that the skin may be formed by spraying skin forming material into an open mold, or by injecting or pouring it into a closed mold and that the skin surface texture or grain will be determined by the texture or grain of the liner surface 7 (p. 6, l. 25 to p. 7, l. 1). Malfliet further teaches back-foaming by a number of methods such as either pouring the foamable composition into the mold before closing the mold or by injecting it in accordance with a RIM process (reaction injection molding) into a mold

after it has been closed (p. 10, ll. 11-20). The flexible liner is removed from the molded article after the article is removed from the mold as shown in Figures 6 and 7.

Demoe is directed to forming vehicle seats of trim coated foam (p. 1, ll. 6-11). Demoe provides evidence that using heating channels to heat the mold cavity were known in this art (p. 2, ll. 1-4 and p. 3, ll. 7-9).

The evidence supports the Examiner's determination that one of ordinary skill in the art would have incorporated a spatially conformed, elastic skin, such as liner 6 taught by Malfliet, into a process of forming a skin and then back-foaming against the skin in a closed mold. Malfliet provides an express reason for making such a combination when the mold requires movable molds or sliders to form under-cuts, the reason being to prevent seams between the mold parts from resulting in unsightly marks on the molded skin. Malfliet provides a solution to a known problem in the art. One of the ways in which a claim's subject matter can be proved obvious is by establishing that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the claims. *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1742 (2007).

The evidence further supports the Examiner's determination that it would have been obvious to use heating channels to heat the mold instead of placing the mold in an oven. Demoe establishes that heating channels were known in the art for heating the mold cavity in which urethane is back-foamed against a skin layer. Using heating channels in place of an oven amounts to substituting one known heating mechanism for another known heating mechanism. "[W]hen a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields

no more than one would expect from such an arrangement, the combination is obvious.” *KSR*, 127 S. Ct. at 1741, quoting *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282 (1976).

Appellants have not shown that the Examiner reversibly erred in finding reasons to combine the teachings of Ericson, Malfliet, and Demoe.

We sustain the rejection of claims 1, 7, 10, 12, and 13 under 35 U.S.C. § 103(a) as unpatentable over the combination of Ericson, Malfliet, and Demoe.

To reject claim 3, the Examiner adds Jourquin. Appellants contend that “[f]or the reasons set forth above ... there is nothing in any of Ericson, Malfliet or Demoe that would lead one skilled in the art to make the modifications proposed by the Examiner.” (Br. 19). As Appellants advance no sufficiently specific arguments directed to the Examiner’s combination of the above discussed prior art with Jourquin as applied to claim 3, we sustain the rejection for the reasons articulated above with respect to claim 1.

With respect to the rejection of claims 1, 8, and 9 under 35 U.S.C. § 103(a) as unpatentable over Greene in view of Malfliet, Ericson, and Demoe, Appellants argue claims 8 and 9 as a group separately from claim 1. We, therefore, select claims 1 and 8 to decide the issues on appeal.

With respect to claim 1, Appellants contend that Greene describes a method in which an entire mold is produced from silicone, but Greene does not disclose or suggest an elastic skin that covers the actual mold, nor do any of the references “give a person skilled in the art any suggestion or motivation to configure the silicone mold taught by Greene as a thin skin and to cover a mold consisting of a different material with it, in order to

solve the problems of seam formation between individual mold parts.” (Br. 17; Reply Br. 7-8).

The Examiner contends that Malfliet describes an elastic skin that would prevent mold seams from being present in the final product (Ans. 9).

The issue is: have Appellants shown that the Examiner reversibly erred in finding that Malfliet provides a reason to incorporate a spatially conformed, elastic skin into a mold used for producing a molded body bonded to a grained molded skin as required by claim 1?

We answer this question in the negative.

Greene describes a process of forming an integral skin on a foam structure by incorporating a silicone mold onto which the polyurethane skin layer is formed (see, e.g., Example 1 at col. 8, ll. 9-16; Fig. 5B).

Polyurethane foam 23 is then deposited into the polyurethane lined mold 17 and lid 15 placed over the foam (col. 8, ll. 17-22).

Malfliet specifically discusses Greene and points out that there is a deficiency in Greene’s process, namely, that “the mother mould carrying the silicone mould part consists of one single part. When the mould shows undercuts as illustrated in the figures of [Greene], the moulded article cannot be demoulded unless it is a sufficiently flexible article such as for example the disclosed cushion.” (Malfliet, p. 3, ll. 13-24.) The implication is that Malfliet’s process in which a silicone liner is used instead of the silicone mold of Greene is an improvement over the process of Greene. This express discussion of Greene within Malfliet provides evidence that one of ordinary skill in the art would have used an elastic skin liner of silicone in place of the silicone mold of Greene to allow demolding of less flexible articles.

Appellants have not shown that the Examiner reversibly erred in finding that Malfliet provides a reason to incorporate a spatially conformed, elastic skin into a mold used for producing a molded body bonded to a grained molded skin as required by claim 1.

Turning to claim 8, this claim requires that the liquid plastic film used to form the molded skin be applied with a predefined thickness to the elastic skin by pouring or injecting liquid plastic into a closed mold. Appellants contend that no disclosure within Greene would have motivated a person skilled in the art to shape the surface skin using an inserted die, in order to adjust the precise layer thickness of the skin layer (Br. 17-18). However, we note that Malfliet indicates that there were several known ways of molding the skin including injecting or pouring the forming material into a closed mold as well as by spraying, the preferred embodiment of Greene (Malfliet, p. 9, ll. 7-10; Greene, col. 5, ll. 17-22). As molding the skin in a closed mold was a known alternative which presumably would have provided predictable results, the evidence supports the Examiner's conclusion of obviousness.

We sustain the rejection of claims 1, 8, and 9 under 35 U.S.C. § 103(a) as unpatentable over Greene, Malfliet, Ericson, and Demoe.

Turning to the rejection of claim 11 in which the Examiner adds Staneluis to the combination of Greene, Malfliet, Ericson, and Demoe, Appellants advance no additional arguments. Therefore, we sustain the rejection for the reasons presented above and those presented by the Examiner.

III. DECISION

The decision of the Examiner is affirmed.

IV. TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal maybe extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

PL initials:
sld

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